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LEE, HONG, DEGERMAN, KANG & SCHMADEKA
660 S. FIGUEROA STREET
Suite 2300
LOS ANGELES, CA 90017

EXAMINER	
PERVAN, MICHAEL	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/826,496	MOON, SEONG HAK	
	Examiner	Art Unit	
	Michael Pervan	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7-9 and 16-20* is/are rejected.

7)☒ Claim(s) *5,6 and 10-11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-4, 6-9, 11, 14-15 and 17 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2, 9-11 and 13-15 of copending Application No. 10/826,231. Although the conflicting claims are not identical, they are not patentably distinct from each other because the present claims 1-4, 6-9, 11, 14-15 and 17 have a slight variation in the wording of the claims over the claims 1-2, 9-11 and 13-15 of Application No. 10/826,231.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Present Application	Application No. 10/826,231
1. a spacer discharging apparatus of an FED (Field Emission Display) comprising: a first resister connected between an anode electrode of the FED and a high voltage power source unit applying a high voltage to the anode electrode; and a switch unit connected between the anode electrode and the first resister, and selectively connecting the anode electrode and a spacer ground electrode of the FED.	1. A spacer discharging apparatus of an FED, comprising: a discharge path for connecting an anode electrode and a spacer ground electrode of an FED; and a switch unit for selectively connecting the discharge path to discharge electric charge charged in a spacer of the FED. 11. The apparatus of claim 1, further comprising: a protection resister connected between the anode electrode and a high voltage power source unit applying a high voltage to the anode electrode.
2. the apparatus of claim 1, wherein the switch unit is connected in series between the anode electrode and the spacer ground electrode and turned on/off.	2. The apparatus of claim 1, wherein the switch unit is connected in series between the anode electrode and the spacer ground electrode and selectively turned on/off.
3. the apparatus of claim 2, wherein the switch is one of a high voltage relay, a high voltage switch and a thyrister.	9. The apparatus of claim 8, wherein the switch is one of a high voltage relay, a high voltage switch and thyrister.

4. the apparatus of claim 2, further comprising: a controller for turning on/off the switch.	2. The apparatus of claim 1, wherein the switch unit is connected in series between the anode electrode and the spacer ground electrode and selectively turned on/off.
6. the apparatus of claim 5, wherein the switch is turned on when a current flows at the transistor, and the switch is turned off when no current flows at the transistor.	10. The apparatus of claim 9, wherein the switch is turned on when a current flows to the transistor, and turned off when no current flows to the transistor.
7. the apparatus of claim 1, wherein the switch unit comprises: a switch connected in series between the anode electrode and the spacer ground electrode and turned on/off; and a second resister connected in series between the switch and the spacer ground electrode.	2. The apparatus of claim 1, wherein the switch unit is connected in series between the anode electrode and the spacer ground electrode and selectively turned on/off. 13. The apparatus of claim 11, further comprising: a discharge controlling resister for controlling discharge time and a residual voltage.
8. the apparatus of claim 7, wherein the switch is one of a high voltage relay, a high voltage switch and a thyrister.	9. The apparatus of claim 8, wherein the switch is one of a high voltage relay, a high voltage switch and thyrister.

9. the apparatus of claim 7, further comprises: a controller for turning on/off the switch.	2. The apparatus of claim 1, wherein the switch unit is connected in series between the anode electrode and the spacer ground electrode and selectively turned on/off.
11. the apparatus of claim 10, wherein the switch is turned on when a current flows at the transistor, and the switch is turned off when no current flows at the transistor.	10. The apparatus of claim 9, wherein the switch is turned on when a current flows to the transistor, and turned off when no current flows to the transistor.
14. the apparatus of claim 12, wherein the second resister is connected between the anode electrode and the switch.	15. The apparatus of claim 13, wherein the discharge controlling resister is connected between the switch unit and the anode electrode.
15. the apparatus of claim 12, wherein the second resister is connected between the switch and the spacer ground electrode.	14. The apparatus of claim 13, wherein the discharge controlling resister is connected between the switch unit and the spacer ground electrode.
17. the method of claim 16, wherein the switch is one of a high voltage relay, a high voltage switch and a thyrister.	9. The apparatus of claim 8, wherein the switch is one of a high voltage relay, a high voltage switch and thyrister.

As can be seen above, the difference between claims 1-4, 6-9, 11, 14-15 and 17 of this application and claims 1-2, 9-11 and 13-15 of Application No. 10/826,231 is that the present claims have a slightly different wording but are otherwise very similar to claims 1-2, 6-9, 11, 14-15 and 17 therefore, the present claims 1-4, 6-9, 11, 14-15 and 17 are not patentably distinct from claims 1-2, 9-11 and 13-15 of Application No. 10/826,231.

Claim Objections

3. Claim 1 is objected to because of the following informalities: "selectively connecting the anode electrode and a spacer ground electrode of the FED" could be understood as the anode electrode and spacer ground electrode are selectively connected to each other or each of the electrodes are selectively connected, but not to each other. Based on the specification and drawings, the examiner believes that the anode electrode and spacer ground electrode are to be selectively connected to each other. Appropriate correction is required.

4. Claim 12 is objected to because of the following informalities: "at" is repeated. Please remove one instance. Appropriate correction is required.

5. Claim 19 is objected to because of the following informalities: "at" is repeated. Please remove one instance. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 12-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "the second resistor" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claims 13-15 are rejected as being dependent from claim 12.

In regards to claim 16, it recites among other features "a step in which a switch connecting the anode electrode and a spacer ground electrode is on/off according to the control signal to discharge electric charge charged on a spacer". Based on the specification, the switch is on when discharging an electric charge charged on a spacer and off when it is not discharging an electric charge charged on a spacer. The claim language leads one to believe that the discharging occurs whether the switch is on or off. Therefore, it is unclear based on the specification whether discharging occurs in both on and off states or only in the on state of the switch.

Claims 17-20 are rejected as being dependent from claim 16.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rumbaugh et al (US 6,031,336) in view of Yamamoto et al (6,441,559).

In regards to claim 1, Rumbaugh discloses a spacer discharging apparatus of an FED (Field Emission Display) comprising:

a first resister (183) connected between an anode electrode (124) of the FED and a high voltage power source unit (126) applying a high voltage to the anode electrode (Fig. 8 and col. 8, line 52-col. 9, line 7); and

a switch unit (151) connected between the anode electrode and the first resister (Fig. 8 and col. 8, line 52-col. 9, line 7).

Rumbaugh does not disclose and selectively connecting the anode electrode and a spacer ground electrode of the FED.

Yamamoto discloses selectively connecting the anode electrode and a spacer ground electrode of the FED (Fig. 1 and col. 4, lines 45-47; since the spacer is connected to the anode electrode which is connected to ground, the anode electrode and the spacer ground electrode would be selectively connected).

It would have been obvious at the time of invention to modify Rumbaugh with the teachings of Yamamoto, selectively connecting the anode electrode and a spacer ground electrode of the FED, because it would allow for a faster discharge of the built up charge on the spacer.

In regards to claim 2, Rumbaugh discloses the apparatus of claim 1, wherein the switch unit is connected in series between the anode electrode and the spacer ground electrode and turned on/off (Fig. 8 and col. 8, line 52-col. 9, line 7; as can be seen from the drawing the switch unit is in series between the anode electrode and spacer ground electrode).

In regards to claim 3, Rumbaugh discloses the apparatus of claim 2, wherein the switch is one of a high voltage relay, a high voltage switch and a thyrister (col. 3, lines 6-10 and col. 8, lines 62-64; since the anode voltage pull-down circuit deals with high voltage, it is inherent that the switch would be of the high voltage type).

In regards to claim 4, Rumbaugh discloses the apparatus of claim 2, further comprising:

a controller for turning on/off the switch (col. 8, line 52-col. 9, line 7; since the switch unit is turned on and off, there must a controller activating it).

In regards to claim 7, Rumbaugh discloses the apparatus of claim 1, wherein the switch unit comprises:

a switch (151) connected in series between the anode electrode (124) and the spacer ground electrode (136) and turned on/off (col. 8, line 52-col. 9, line 7); and

a second resister (149) connected in series between the switch and the spacer ground electrode (Fig. 8 and col. 8, line 52-col. 9, line 7).

In regards to claim 8, Rumbaugh discloses the apparatus of claim 7, wherein the switch is one of a high voltage relay, a high voltage switch and a thyrister (col. 3, lines 6-10 and col. 8, lines 62-64; since the anode voltage pull-down circuit deals with high voltage, it is inherent that the switch would be of the high voltage type).

In regards to claim 9, Rumbaugh discloses the apparatus of claim 7, further comprises:

a controller for turning on/off the switch (col. 8, line 52-col. 9, line 7; since the switch unit is turned on and off, there must a controller activating it).

Allowable Subject Matter

9. Claims 5-6 and 10-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 5 and 10 recite "a detector for detecting a value of a voltage of the anode electrode when the voltage applied to a scan electrode or the anode electrode of the FED is cut off, a comparator for comparing the detected voltage value and a predetermined reference voltage value and a transistor driven on the basis of the comparison result".

Rumbaugh discloses a switch being on for scanning and closed for discharging. Rumbaugh does not disclose detecting voltage of an anode, comparing said voltage to a reference voltage and driving a transistor based on the comparison result.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pervan whose telephone number is (571) 272-0910. The examiner can normally be reached on Monday - Friday between 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MVP
June 19, 2007

AMR A. AWAD
SUPERVISORY PATENT EXAMINER